IN THE FIELD

Field Museum
Member Magazine

Vol. 89, No. 4
Winter/Spring 2019

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Winter/Spring 2019

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ON THE COVER
SUE—the largest, most complete, and best preserved *Tyrannosaurus rex* ever discovered—has a new home! You can visit SUE within the heart of the *Griffin Halls of Evolving Planet*. Read the full story on pages 6 and 7.
GEO86284_2C / JOHN WEINSTEIN

Let us know your thoughts about *In The Field* magazine. Email your comments to ITF@fieldmuseum.org

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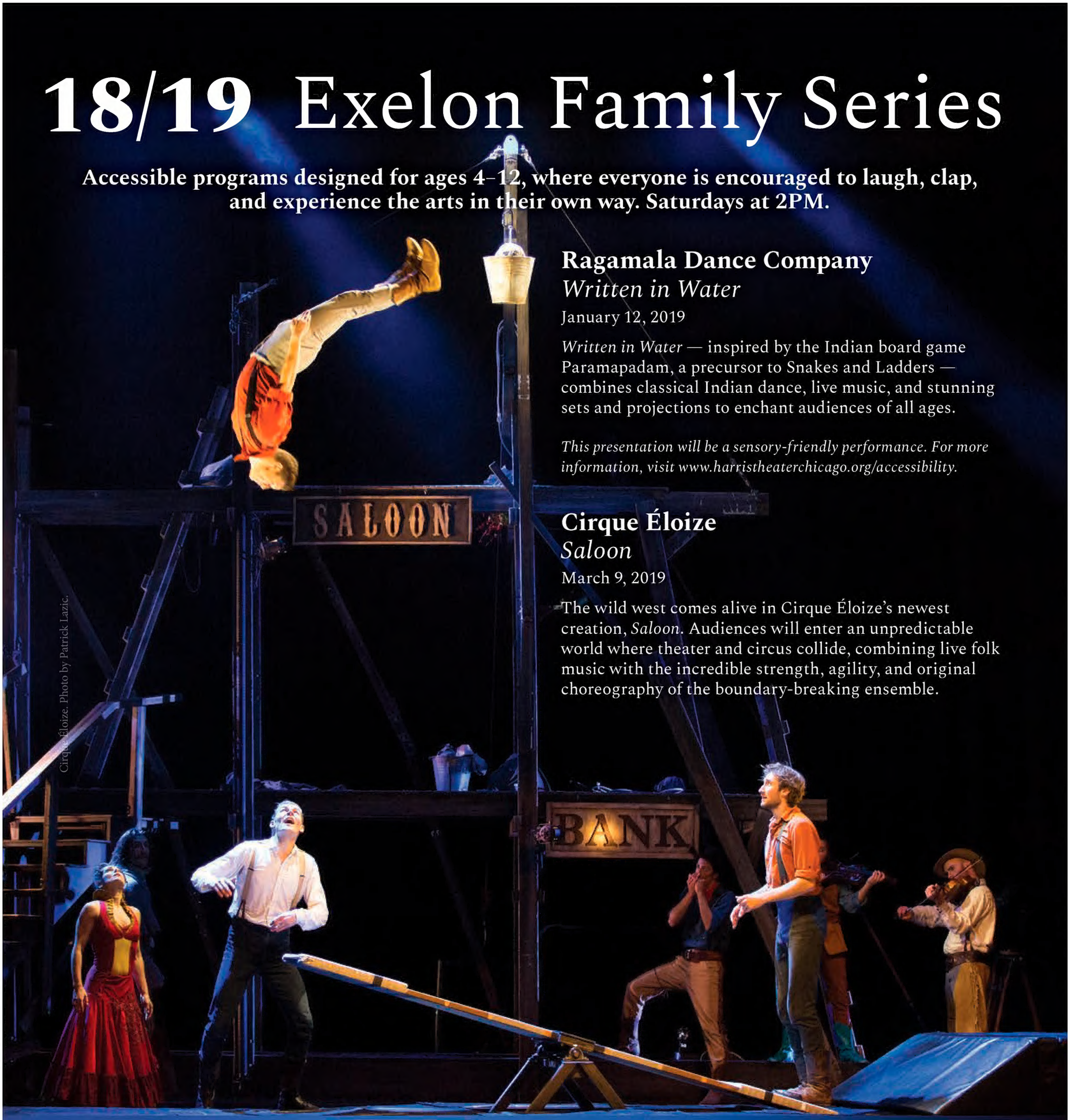
18/19 Exelon Family Series

Accessible programs designed for ages 4–12, where everyone is encouraged to laugh, clap, and experience the arts in their own way. Saturdays at 2PM.



Cirque Éloize. Photo by Patrick Lazic.

Ragamala Dance Company
Written in Water
January 12, 2019

Written in Water — inspired by the Indian board game Paramapadam, a precursor to Snakes and Ladders — combines classical Indian dance, live music, and stunning sets and projections to enchant audiences of all ages.

This presentation will be a sensory-friendly performance. For more information, visit www.harristheaterchicago.org/accessibility.

Cirque Éloize
Saloon
March 9, 2019

The wild west comes alive in Cirque Éloize's newest creation, *Saloon*. Audiences will enter an unpredictable world where theater and circus collide, combining live folk music with the incredible strength, agility, and original choreography of the boundary-breaking ensemble.

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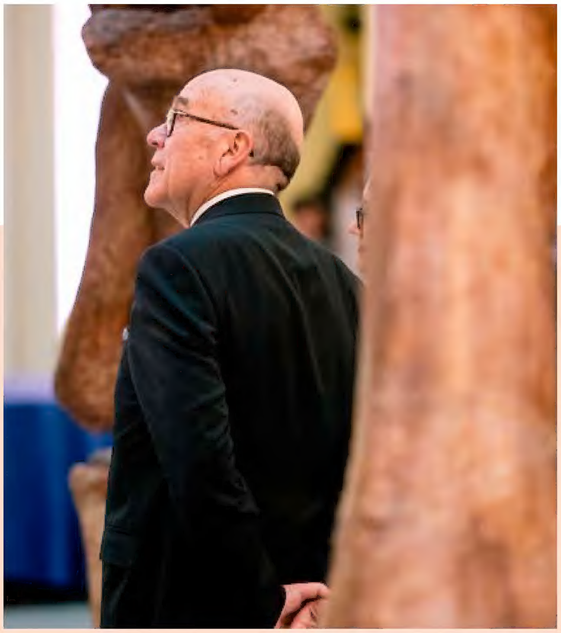

© KYLE FLUBACKER PHOTOGRAPHY

Dear Member,

The Field Museum continues its 125th anniversary celebration in this New Year. The Museum received its charter in 1893, but didn't open its doors to the public until nearly nine months later. So, 2019 marks the 125th year visitors have been enjoying and learning from *your* Museum.

Much has happened since then. The Field moved from its original location in Jackson Park to its present-day home on the lakefront in 1920. The collection has grown from its original 50,000 objects to nearly 40 million today. In addition, thousands of scientists and educators have passed through our doors over the years.

We remain optimistic about the future of the planet, fueled by the discoveries and scientific understanding scholars continue to reveal every day. In the coming years, I see many opportunities for Museum scientists to address the urgent challenges of our time—from environmental change to making science inclusive and accessible to all. Our work, we realize, must continue.

On September 13, 2018, we unveiled our most ambitious fundraising campaign: ***Because Earth. The Campaign for the Field Museum.*** This $250 million initiative, approved and led by the Board of Trustees, will secure the Museum's place as a forward-thinking scientific institution for generations to come. Read more about this transformative campaign on page 4.

Together with you, we explore and celebrate the past to create a brighter future rich in nature and culture.

RICHARD W. LARIVIERE, PHD

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We gratefully acknowledge members of the Board of Trustees whose leadership and philanthropy make the Field Museum an extraordinary force for science and learning.

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As of December 2018.

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Trustee Spotlight

JOHN AND LAURA PODJASEK

BY USHA SUBRAMANIAN,
INSTITUTIONAL ADVANCEMENT

"Several years ago, I was at the Field Museum for an evening event with my family. I had my nose pressed to the glass, looking into the Pritzker DNA Lab. John McCarter (then Field President) invited me inside to meet the scientist and to observe from up close. And that was that. I was hooked," recalls Field Museum Trustee John F. Podjasek III.

Starting with the President's Leadership Council in 2007, Podjasek increasingly took on other leadership roles. He was elected to the Board of Trustees in 2015. His wife Laura is a Women's Board member who co-chaired last fall's highly successful Gala. They represent a second generation of Field leaders, having followed in the footsteps of John's parents, Rita and John Canning, who continue to be extraordinary Museum leaders and philanthropists.

The Podjaseks' philanthropic commitments reflect their confidence in the Museum's ability to have measurable impact on global issues—conservation, education, and scientific research.

GN92502_005AD / JOHN WEINSTEIN

BECAUSE EARTH

The Campaign for the Field Museum

BY USHA SUBRAMANIAN,
INSTITUTIONAL ADVANCEMENT

On September 13, 2018, the Field Museum Board of Trustees unveiled an ambitious $250 million fundraising campaign: ***Because Earth. The Campaign for the Field Museum.*** At the launch event, Campaign Co-Chairs Robert W. Crawford, Jr. and Marshall Field V recognized several donors whose gifts have created early momentum.

"As one of the world's great natural history organizations, we explore, conserve, and celebrate nature and culture," said Field. "The Campaign reinforces our dedication to this planet, setting a new pace for discoveries and learning. Because, this is our Earth, and we are on it."

The Campaign will fuel new endowments to expand the Museum's impact; create 21st-century visitor experiences; and sustain operations in a time of transformation.

Four featured objectives represent the Field's unique strengths and its ability to drive meaningful advances in the coming years.

Environmental Change

Biological diversity is essential to the health of our planet. The Field is one of the only institutions with biological collections both large and old enough to fully examine this topic. New understandings, derived from these collections, will allow Field scientists to help conserve millions of acres around the world—together with people and partners in these communities.

Cooperation and Conflict

For the first time in human history, more than half of the world's population lives in cities. Field scholars will explore how cities evolved and the impact of urban environments on culture and nature. This work will shape efforts to sustain Chicago's environmental and cultural diversity.

Access and Inclusion

Every Field Museum visitor should feel welcome and inspired to learn. Museum exhibitions will transform the visitor experience into a journey of discovery. A major new exhibition—*Native North American Journeys*—will be one focal point of a dynamic visit. Additionally, the Field's rapidly evolving learning programs will better serve students of all ages, teachers, and visitors with autism and sensory processing disorders.

Fueling Our Mission

The Field is Chicago's museum. New endowment funds will help protect its greatest treasures: an irreplaceable collection of 40 million objects and specimens; a community of exceptional scholars and educators; and a landmark building.

Exhibition

AUDUBON'S *BIRDS OF AMERICA*

BY GRETCHEN RINGS,
MARIE LOUISE ROSENTHAL LIBRARY

Each Monday morning in the Marie Louise Rosenthal Library, a ritual is performed: the turning of the page of John James Audubon's magnificent *The Birds of America* (1827–1838). Three library staff assemble to unlock and open the glass display case, which is too unwieldy for one person to manage. (The plate glass is 65 inches wide and weighs approximately 100 pounds). By turning one page per week—and switching out each volume quarterly—Library staff keep the book in excellent condition for viewing.

A massive tome, both in size and impact, *The Birds of America* is one of the most famous bird books. The Field's copy was gifted to the Museum by Mary W. Runnells in 1969. This set of four volumes is rich and brilliant in coloring and are bound in a systematic arrangement—rather than in the usual plate number order—closely following Audubon's ordering of birds in his *Synopsis of the Birds of America* (1839). Produced in a double elephant folio, its large format captures Audubon's life-size renderings of the birds.

The original owner of the Field's copy was Dr. Benjamin Phillips, a close friend of Audubon. Phillips' was one of three for which thirteen extra "composite" prints were prepared. These "overprintings"—created by placing new plates on top of old plates—corrected errors, oversights, and other problems that occurred during the 12-year publishing enterprise.

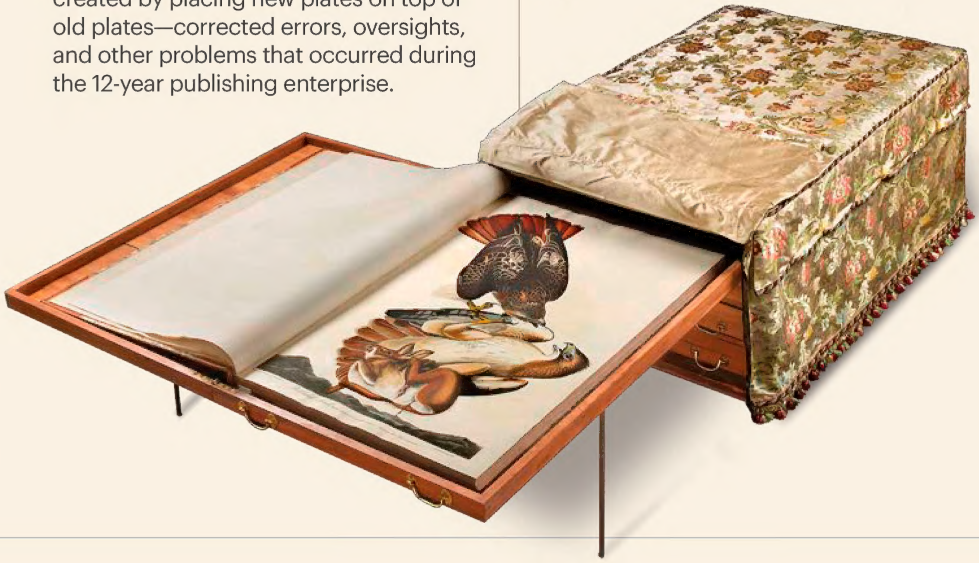
John James Audubon's The Birds of America *contains 435 renderings, including "Red-shouldered Hawks"* (Buteo lineatus)*.*

© JOHN JAMES AUDUBON

The composite prints facilitate the systematic arrangement of the bird images, and thus represent the ideal state of Audubon's great work.

Edward Harris (ornithologist) and Audubon himself owned the other two sets of composite prints. The Harris copy was likely never bound and has almost certainly been dispersed. The Audubon copy is in the Stark Museum in Orange, Texas.

An exhibition featuring *The Birds of America* and other works by Audubon in the Library's collection will open in the T. Kimball and Nancy N. Brooker Gallery on April 19.



(Bottom, left) A custom-made ottoman built to hold and display Audubon's The Birds of America *is also held by the Library as part of its collection.*

GN91062_29D / JOHN WEINSTEIN

SUE's

NEW HOME

By Benjamin Miller

EXHIBITIONS

SUE—the largest, most complete, and best preserved *Tyrannosaurus rex* ever found—scarcely requires an introduction. Named for Sue Hendrickson, who discovered the famous fossil in 1990, SUE debuted at the Field Museum on May 17, 2000 and presided over Stanley Field Hall for nearly 20 years. Seen by tens of millions of visitors, SUE is an icon for both the Field Museum and the City of Chicago.

Nevertheless, there is more to SUE than celebrity status. Thanks to the fossil's unrivaled completeness, scientists now know more about SUE than almost any other dinosaur. From how fast *T. rex* grew up to what injuries and illnesses afflicted an apex predator, SUE is a treasure trove of information about the rough-and-tumble life of a meat-eating dinosaur.

Since SUE first went on display, visitors have consistently asked for more information and more context about the *T. rex's* world.

"I loved SUE in Stanley Field Hall," says Director of Exhibitions Jaap Hoogstraten, "but it was presented as a piece of sculpture, not a specimen." Made possible by the generous support of the Kenneth C. Griffin Charitable Fund, the Field Museum has created an entirely new experience around a dinosaur the world knows by name.

SUE is made up of over 300 bones, and disassembling, moving, and rebuilding the skeleton was an enormous undertaking. Assistant Exhibitions Registrar Lisa Geiger oversaw the whole process. "The reassembly work relied on recordkeeping and good data," Geiger recalls. "Each individual bone needs a record, as well as information on how it is related to the others in 3D space."

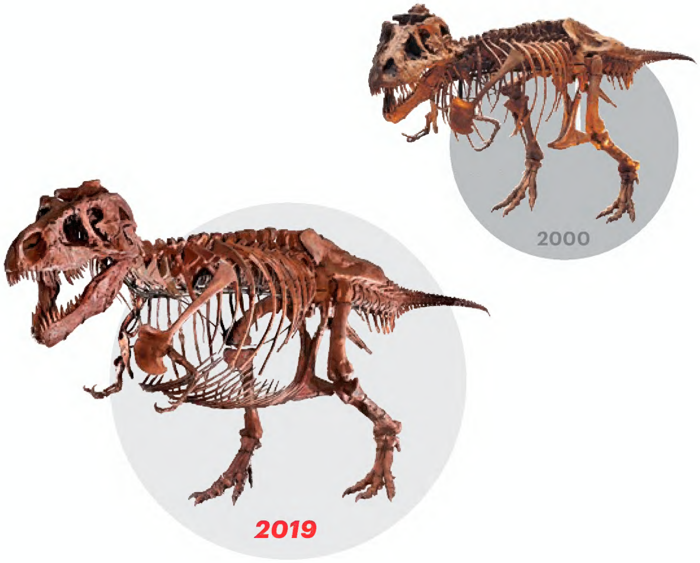
Visitors will find SUE in a very different setting. The *T. rex* now resides within the heart of the *Griffin Halls of Evolving Planet*, the Field Museum's award-winning permanent exhibition about the evolution of life on earth.

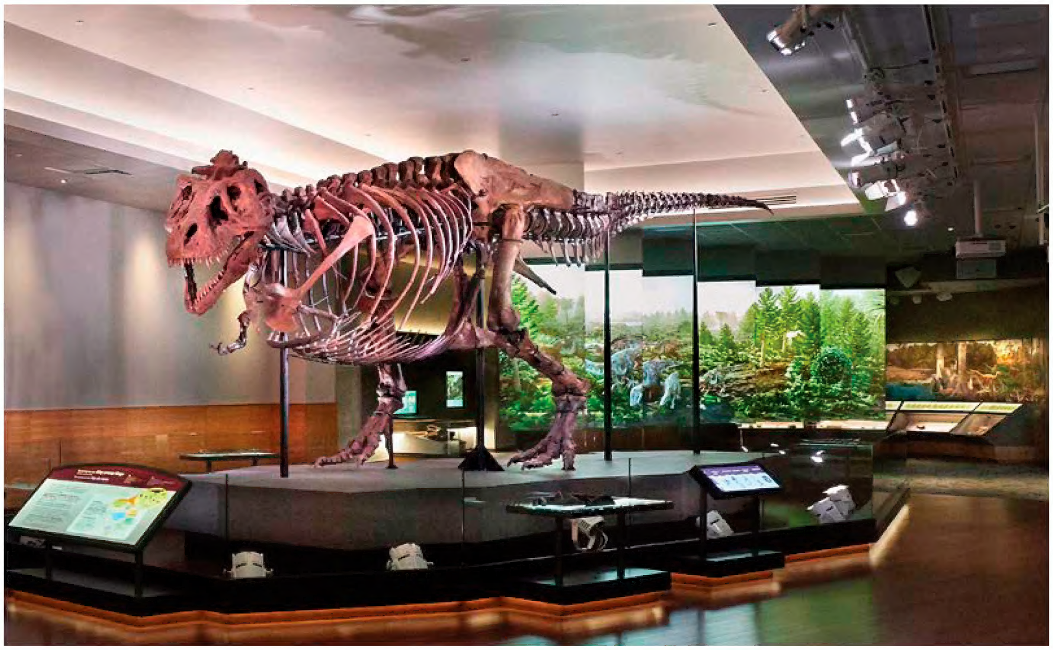
GEO86284_2C / JOHN WEINSTEIN

Upon entering SUE's domain, visitors will be transported back 67 million years to the Cretaceous Period. They will hear frogs, insects, and babbling brooks. They will see realistic computer-animated scenes showcasing the animals, plants, and landscapes of SUE's world. And they will stand face to face with SUE, one of the largest predators to ever walk the earth.

Moving SUE to *Evolving Planet* was an opportunity to update the skeleton to reflect the latest science. Visitors will immediately notice SUE looks bigger around the middle. That's because Museum staff have added the gastralia—rib-like bones that were embedded in SUE's belly muscles. The new SUE also features a repositioned right leg, adjustments to the shoulder bones and wishbone, and wide-open jaws.

For Digital Project Manager Taylor Peterson, the most exciting part of the new exhibition is the "SUE Show." This narrated presentation uses state-of-the-art light-mapping technology to take visitors on a tour of SUE's skeleton. Highlighting battle scars, arthritic joints, and more, the show will help visitors see SUE the way scientists do. "We want to present the information in a totally new and awe-inspiring way," Peterson explains. "We want to give people goosebumps."

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(Above) Scientists now know more about T. rex than when SUE was first assembled in 2000, so Museum staff updated the mounted skeleton to reflect that information.

(Left) SUE's new home inside the Griffin Halls of Evolving Planet.

(Opposite) In the new exhibition, SUE's jaws are open wider, better displaying the famous set of chompers!

(Below) Scientific illustrator Velizar Simeonovski created this mural for SUE's new home representing the plants and animals of the Cretaceous Period that lived alongside SUE.

VELIZAR SIMEONOVSKI © FIELD MUSEUM

SUE IS PRESENTED IN BILINGUAL TEXT IN ENGLISH AND SPANISH.

UPDATES TO SUE THE T. REX AND THE GRIFFIN HALLS OF EVOLVING PLANET ARE PART OF THE GRIFFIN DINOSAUR EXPERIENCE, MADE POSSIBLE BY THE GENEROUS SUPPORT OF THE KENNETH C. GRIFFIN CHARITABLE FUND.

A TURTLE FROM THE TRIASSIC

BY EMILY STEARNEY, PUBLIC RELATIONS

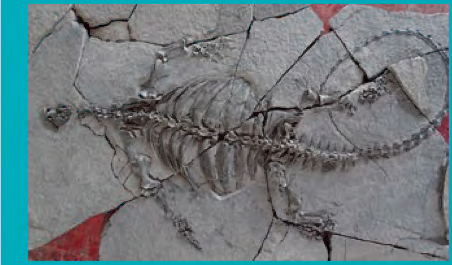
Eorhynchochelys sinensis means "dawn beak turtle from China." Identified by the Field Museum's Olivier Rieppel, PhD, this fossil specimen sheds light on the ancestry of turtles and supports the theory that evolution isn't as simple as we might think.

Along the muddy, plant-lined edges of an ancient marine basin 228 million years ago lived this large, shell-less relative of modern-day turtles. Here, *E. sinensis* spent its days foraging for food in a climate similar to the subtropical reefs of the Bahamas.

"This creature was over six feet long. It had a strange, disc-like body and a long tail, and its jaws developed into this strange beak," Rieppel said.

While turtles swimming around today's ponds have both beaks and shells, *Eorhynchochelys* had only a partial beak and no shell. Other early turtles have been discovered with partial shells, but no beaks.

Together, these fossil specimens (below) support the theory of *mosaic evolution*. Evolution isn't a smooth, linear process—traits don't always develop in a steady, linear fashion or through one single species. Like individual mosaic tiles, evolution involves separate pieces fitting together to make a whole.



© NICK FRASER, NATIONAL MUSEUMS SCOTLAND

"Different characteristics evolve at different rates in different species, or sister groups," Rieppel said. As a result, Rieppel explains, scientists tend to look at the relationships between sister groups rather than direct descendants and "missing links."

On its own, *Eorhynchochelys* is a stunning find. When considered alongside its ancient sister groups, the awe-inspiring and complex process of evolution comes into greater focus.

ADRIENNE STROUP © FIELD MUSEUM

Adrienne Stroup, Collections Assistant—and Illustrator

A lifelong artist, Stroup calls upon modern analogies of ancient species to ensure all details in her work are scientifically accurate. To create this rendering of Eorhynchochelys*, Stroup practiced drawing modern-day turtles, communicated across time zones with Rieppel and other researchers, and even used a string to measure the length and proportions of* Eorhynchochelys*'s impressive tail.*

(Inset) Unearthed in China, this fossil of Eorhynchochelys sinensis *is more than six feet long. This is the earliest known turtle fossil found by scientists and may shed light on the unique evolution of the turtle.*

A rendering of Eorhynchochelys sinensis *by Yu Chen of China's Institute of Vertebrate Paleontology and Paleoanthropology as it would have looked 228 million years ago.*

© YU CHEN, IVPP

These statues, or moai, often referred to as "Easter Island heads," are actually full-body figures that became partially buried over time. The moai, which represent important Rapa Nui ancestors, number nearly a thousand, and the largest one is over 70 feet tall.

© DALE SIMPSON, JR.

SOLVING THE MYSTERY OF THE EASTER ISLAND MOAI STATUES

BY KATE GOLEMBIEWSKI, PUBLIC RELATIONS AND **CHANDLER GARLAND**, INSTITUTIONAL ADVANCEMENT

The legend is familiar: 900 years ago, on a remote island 2,300 miles off the coast of Chile, the Rapa Nui people sculpted the famous Easter Island "Heads"—and then, they supposedly destroyed their own society through in-fighting and over-exploitation of natural resources. However, a recent article in the *Journal of Pacific Archaeology* hints at a more complex story. By analyzing the chemical makeup of tools used to create the big stone sculptures, archaeologists found evidence of a sophisticated society where people shared information and collaborated.

"The idea of competition and collapse on Easter Island might be overstated," says lead author Dale Simpson, Jr., an archaeologist from the University of Queensland and current faculty member at the College of DuPage. "To me, the stone carving industry provides solid evidence that there was cooperation among families and craft groups."

Field Museum Research Scientist Laure Dussubieux, PhD, led the chemical analysis of stone tools, or *toki*, excavated by Jo Anne Van Tilburg, PhD, (Cotsen Institute of Archaeology, UCLA) near four statues in an Easter Island quarry. The archaeologists cut off tiny pieces of stone from the toki and then analyzed the different chemical elements present in the samples with a mass spectrometer. The results pointed to a society that Simpson believes involved a fair amount of collaboration.

"The majority of the toki came from one quarry complex," says Simpson. "For everyone to be using one type of stone, I believe they had to collaborate. That's why they were so successful—they were working together."

This level of large-scale cooperation contradicts the popular narrative that Easter Island's inhabitants ran out of resources and warred themselves into extinction. In addition to paving the way for a more nuanced view of the Rapa Nui people, Dussubieux notes that the study is important because of its wider-reaching insights into how societies work.

"Most people don't live on a small island, but what we learn about people's interactions in the past is very important for us now, because what shapes our world is how we interact," says Dussubieux.

By analyzing the chemical makeup of tools used to create the big stone sculptures, archaeologists found evidence of a sophisticated society where people shared information and collaborated.

De Souza carefully tags an Arapaima in the Essequibo River, Guyana.

© ZACHARY JAMES JOHNSTON

Women in Science

LESLEY DE SOUZA

BY CONNIE EYER, INSTITUTIONAL ADVANCEMENT

A leadership change in the Field Museum Women in Science (FMWIS) program in January 2019 will see Lesley de Souza, PhD, a conservation scientist and ichthyologist, take over the helm from Corrie Moreau, PhD, who has accepted a professorship at Cornell University. De Souza's research focuses on understanding fish diversity in the Amazon basin, which she utilizes for community-based conservation efforts.

De Souza became a member of FMWIS shortly after she arrived at the Museum two years ago, but her passion for mentoring women began during her graduate studies. "It is so important for women to have role models in the sciences," de Souza said, adding that "this is especially important in cultures and communities where [those role models] are rare. I have seen this firsthand in some of my experiences in rural schools in the US, large cities, and remote Indigenous and *campesino* [farm] communities in South America."

Field Museum Women in Science was founded in 2013 and is dedicated to inspiring, encouraging, and increasing participation of women in the sciences. The program hosts lectures and presentations by women scientists and works with the Museum's Women's Board to sponsor internships for women in high school and college.

"I envision working with the FMWIS committee, its members, and the Women's Board to carry on the success of the program," said de Souza. "An incredible group of people makes the program run smoothly, and I am honored to be working with them to continue to achieve greater things!"

Field Museum Women in Science will be sponsoring **paid** internships for five high school and five undergraduate interns this summer for six weeks. To apply, please visit: **www.fieldmuseum.org/womeninscience**.

"It is so important for women to have role models in the sciences," de Souza said, adding that "this is especially important in cultures and communities where [those role models] are rare."

Portage Lakefront and Riverwalk, Indiana Dunes National Park.

© K MOORE POWELL 2017

(Below) Climate Ecologist Katherine Moore Powell workshops the Climate Change Adaptation Plan with regional, state, and federal partners from the National State Park Service, the United States Geological Survey, Indiana Dunes State Park, and Save the Dunes.

© K MOORE POWELL 2017

Indiana Dunes

SAVING A HABITAT BY ADAPTING TO CLIMATE CHANGE

BY KATHERINE MOORE POWELL, PHD, AND **ABIGAIL DERBY LEWIS, PHD**, KELLER SCIENCE ACTION CENTER

For more than a century, scientists and community members have well understood the importance of the Indiana Dunes and their unique array of habitats. Efforts to protect and restore this beautiful area continue today. However, changes in the local climate have already left their mark on species such as the Karner blue butterfly (*Lycaeides melissa samuelis*). Endangered since 1992, a drought in 2012 pushed the butterfly to extinction in this region.

A 2014 study conducted by the National Park Service found that climate change has been affecting the national park system, and that many parks are vulnerable to future climate stress, including the Indiana Dunes National Lakeshore, which conserves 15 miles of Lake Michigan shoreline.

To address this, the Indiana Dunes Ecosystem Alliance developed a list of priority habitats and conservation targets for the region in 2015. This list included securing funding to conduct a climate change adaptation plan. In 2017, local conservation group Save the Dunes and the Field Museum brought together regional experts in a Climate Science Working Group to develop the plan. Researchers from the Field's Keller Science Action Center led a series of workshops to identify climate stressors, assess vulnerabilities and resiliencies of habitats, and co-develop adaptation strategies in response to these impacts.

The resulting *Indiana Dunes Climate Change Adaptation Plan* reflects important discussions around the ecological priorities that have guided management activities for decades, based on past climatic conditions. Adaptation strategies arising from this project are climate-informed and account for shifts in seasonality and other factors expected with environmental change in the region. The plan was released in August 2018 with much excitement and interest from both natural resource managers and community partners.

To read a copy of the plan, please visit **www.savethedunes.org.**

“THE VOICE, NARRATIVES, AND PERSPECTIVES OF NATIVE PEOPLES AND INDIGENOUS NATIONS THAT CALL THIS REGION HOME WILL SERVE AS ANCHORS FOR THE NEW HALL.”

REIMAGINING

The Native North American Hall

By Kate Golembiewski

PUBLIC RELATIONS

IN THE COMING YEARS, THE NATIVE NORTH AMERICAN HALL WILL BE TRANSFORMED.

Field Museum staff and Native American community partners are working together to renovate the exhibition, which contains many displays that have stood largely unchanged for decades. Alaka Wali, curator of North American anthropology, says the new hall, scheduled to open in late 2021, "won't be just a new exhibition—it will represent a new way of thinking."

This new approach is evident in the team working on the exhibition. "The Field Museum has established a collaborative process, building on past experiences, that will allow the exhibition to be informed by Native American scholarship," says Director of Exhibitions Jaap Hoogstraten. "We have established an advisory committee of scholars and museum professionals from across the country and from diverse tribes and nations," explains Hoogstraten.

The renovated hall will reflect these Native voices. Visitors to the new hall can expect to see cultural material from the Field's collections as well as pieces from contemporary Native communities. The exhibition is being conceived as having spaces for rotational displays. "A visitor who comes when the exhibition opens in fall 2021 could return a few years later to find many new stories being told," says Hoogstraten. "The exhibitions will be co-curated by Native American scholars and community members, so visitors will encounter unique perspectives and learn from multiple knowledge streams about the history of Native Americans and contemporary concerns and ways of life."

Of all the aspects of the renovation, Wali says she's most excited about the Museum's efforts to hire Native American staff to inform the hall's content and tell their story. "The Native presence at the Field Museum is growing, and our new Native staff are bringing fresh ideas and fresh ways of thinking," says Wali. These new staff members include community liaisons, anthropologists, and collections and conservation professionals who care for the objects in the Museum's collections.

"Visitors will gain a deeper understanding of Native peoples, histories, and contemporary life within the Chicagoland region," says Eli Suzukovich, PhD, a Field Museum research scientist and descendant of the Little Shell Band of Chippewa-Cree. "The voice, narratives, and perspectives of Native peoples and Indigenous nations that call this region home will serve as anchors for the new hall."

(Above) On October 26, a dancer and a drummer from Chicago's American Indian Center participated in a Land Acknowledgment Ceremony outside the Field Museum to begin the renovation of the Native North American exhibition.

(Opposite, clockwise from top left) Chris Pappan, Red Owl's Sacrifice, *2016*

Dress, leggings, and moccasins, unknown maker (Northern Plains), nineteenth century. (Catalog Number 56881)

Model tipi replica of the Cheyenne warrior, Pock Nose. Buckskin, watercolor paints, wood, and hair, probably by Silver Horn. (Catalog Number 96958)

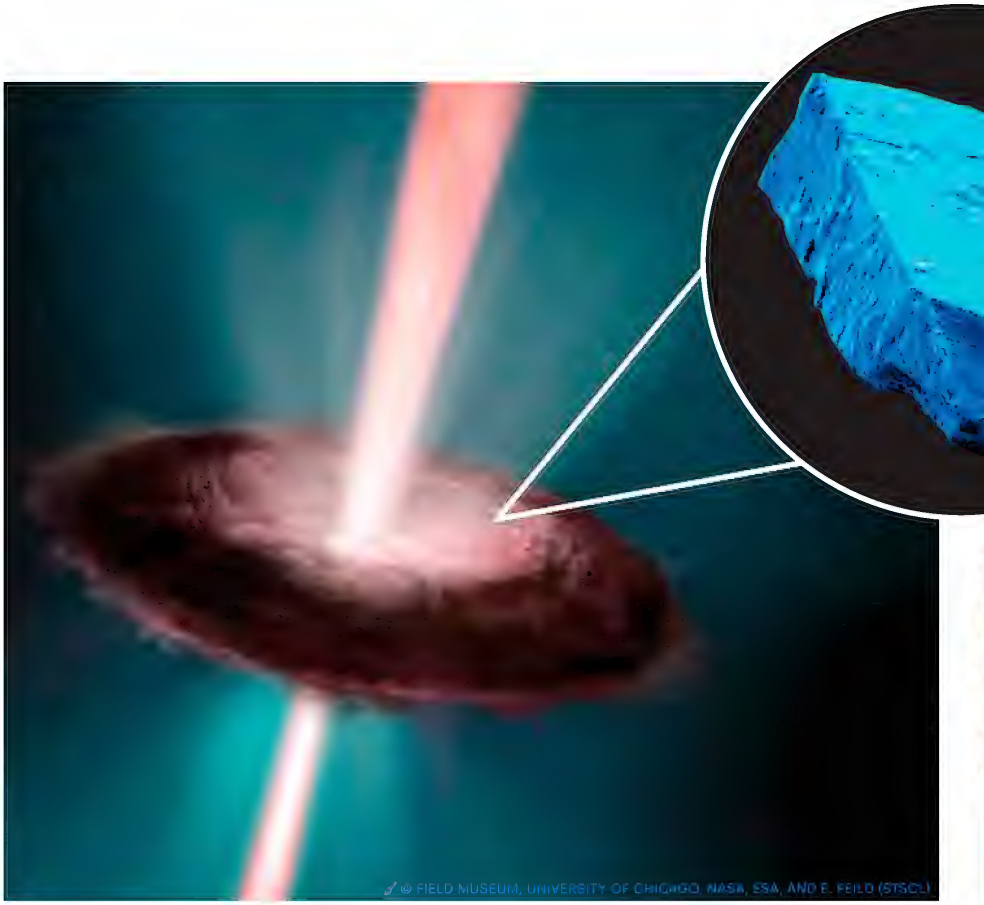
Moccasins, unknown maker (Lakota), nineteenth century. (Catalog Number 67476.1-.2)

Awl, bone and iron by an unknown maker/artist. (Catalog Number 53041)

"Maternal Journey" by Rhonda Holy Bear. This piece is an homage to the strength and dignity of the Plains mother. She metaphorically carries the culture and history of her people as she literally carries her children. Wood, hide, cloth, paint, glass beads, hair, shell, and metal.

A child's vest that was put on display at the 1893 World's Columbian Exposition. Glass beads and fabric by an unknown artist, U.S. (Catalog Number 15781).

ALL IMAGES © JOHN WEINSTEIN, FIELD MUSEUM



© FIELD MUSEUM, UNIVERSITY OF CHICAGO, NASA, ESA, AND E. FEILD (STSCI)

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BLUE CRYSTALS CAPTURED EVIDENCE OF THE SUN'S ACTIVE YOUTH

BY PHILIPP HECK, PHD, ROBERT A. PRITZKER CENTER FOR METEORITICS AND POLAR STUDIES

The Sun's active youth has long been inferred from astronomical observations of other stars that are currently going through an early phase of development. But about thirty years ago, scientists found hints of the Sun's early activity in meteoritic minerals. However, the results left room for other interpretations and were considered controversial. Now, a joint Field Museum-University of Chicago study of some of the solar system's oldest crystals—preserved in a meteorite—provides unambiguous evidence for enhanced activity during the Sun's youth.

The "smoking guns" are nuclear signatures of an early, active Sun found in tiny blue crystals, called hibonite, extracted from the famous Murchison meteorite, one of the treasures of the Field Museum's collections. Postdoctoral Scholar Levke Kööp, affiliated with the University of Chicago and the Field Museum, spent months in the Museum's laboratories extracting hibonite from Murchison. In her PhD research, Kööp determined that the hibonites formed before anything else in the solar system, making them the prime target to search for signs of an early active Sun.

When the Sun was young and more active, the crystals were floating free in space (well before they became part of the meteorite) and were fully exposed to the Sun. Later, the solar system became dusty, which obscured the Sun until the planets formed. Kööp, Jennika Greer, a University of Chicago resident graduate student at the Museum, and I used the world's highest-sensitivity noble gas mass spectrometer at ETH Zurich (a research university in Switzerland) to detect the early Sun's helium and neon signatures in the hibonites, confirming the Sun was very active during its youth.

(Top left) Illustration of the early solar disk, with an inset image of a blue hibonite crystal, one of the first minerals to form in the Solar System.

(Top right) Lead author Levke Kööp, a post-doc from the University of Chicago and an affiliate of the Field Museum, working in the lab.

> The "smoking guns" are nuclear signatures of an early, active Sun found in tiny blue crystals, called hibonite

Want to learn more? Read "High early solar activity inferred from helium and neon excesses in the oldest meteorite inclusions" in *Nature Astronomy* (30 July 2018) **www.nature.com/articles/s41550-018-0527-8**

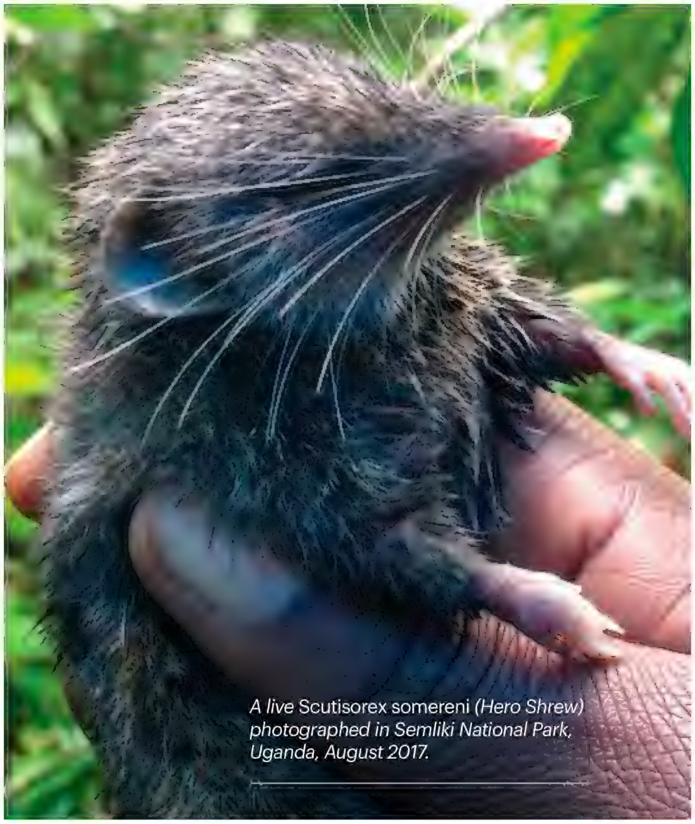
RESEARCHING THE HEROIC STRENGTH OF MAMMALS

BY STEPHANIE SMITH, PHD, SCIENCE & EDUCATION, ZOOLOGY

In researching evolution, morphology (the study of shape and form) plays a key role in helping scientists understand how an organism's body interacts with its environment. For example, the hummingbird's long beak can be considered an adaptation for siphoning nectar out of the depths of flowers. But it's not always clear why some animals have bodies and organs of a particular shape. One such instance includes mammals with unusually reinforced backbones: sloths, anteaters, armadillos, and hero shrews.

Why are these mammals of particular interest? The individual bones (vertebrae) in their spines have additional attachment points with one another that are lacking in other mammals, yielding an especially strong back. It has even been reported that a single hero shrew (*Scutisorex*) can bear the weight of an adult human and escape unscathed! However, it's not immediately clear what advantage, if any, this reinforcement gives the animal—apart from safety around careless hikers.

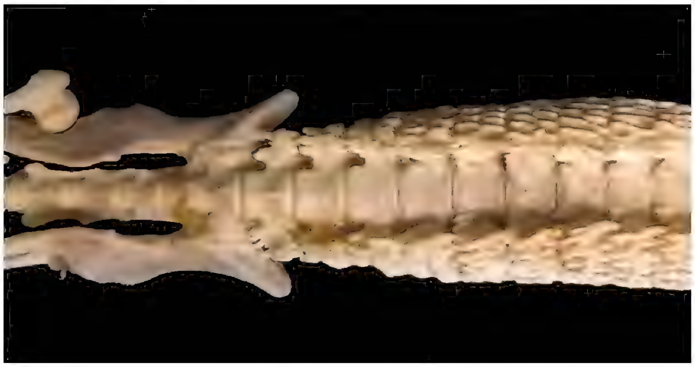
In collaboration with Field Museum Associate Curator Ken Angielczyk, PhD, Negaunee Curator Lawrence Heaney, PhD, Adjunct Curator Julian Kerbis Peterhans, PhD, and Professor Zhe-Xi Luo, PhD (University of Chicago), I am using x-ray CT technology to look inside the vertebrae of these mammals and measure their internal structures to figure out how the bones might be functioning.



A live Scutisorex somereni *(Hero Shrew) photographed in Semliki National Park, Uganda, August 2017.*

© JULIAN KERBIS PETERHANS

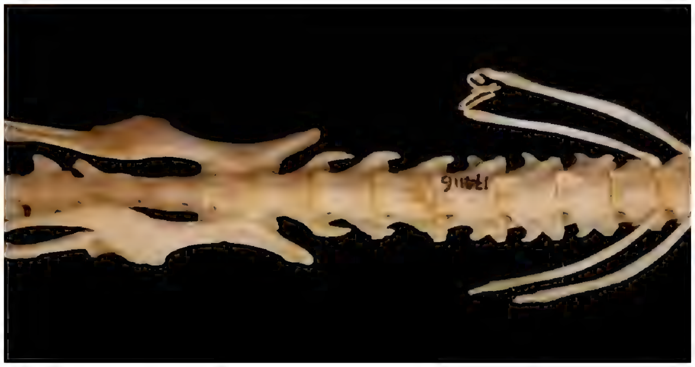
The inside of a vertebra resembles a sponge, with a web of bony struts to withstand the forces acting on the bone when the animal moves. But that spongy structure can be configured in different ways. By measuring and comparing these structural configurations—for example, in shrew species with and without reinforced spines—we hope to determine if external reinforcement in the vertebrae evolved to help the animal withstand a particular outside force and/or to support the animal when undertaking specific activities like swimming, climbing, digging, and walking.



FMNH 160177 / STEPHANIE SMITH

(Left) The lumbar spine of the Scutisorex somereni *(Hero Shrew), showing the interlocking external structures.*

The inside of a [shrew] vertebra resembles a sponge, with holes and struts to withstand the forces acting on the bone when the animal moves.



FMNH 174166 / STEPHANIE SMITH

(Below) For comparison, this spine belongs to a specimen of Crocidura olivieri, *a similarly sized shrew that has a more standard-looking spine.*

© MARSEL VAN OOSTEN, THE NETHERLANDS

© DENIS BUDKOV, RUSSIA

Wildlife Photographer of the Year

By Janet Hong
EXHIBITIONS

We're not always sure how to define "wild," but we love to glimpse animals living out their private lives in forests, grasslands, or oceans. And when we see a great piece of wildlife photography, the effect is immediate and enthralling. Sometimes, the animal in the photo is a protagonist—you identify with that animal and its story—and you maybe even lock eyes with it.

But sometimes the hero of a photograph is the photographer. It takes perseverance to get a great shot—understanding an animal's behavior and tracking it for days to create a wonderful composition that comes from deep knowledge of a place or plant or animal. Oftentimes, it's about being in the right place at the right moment.

Since 1964, the Natural History Museum, London, has celebrated the world's best wildlife photography, conducting an annual competition that attracts thousands of entries from professional and amateur photographers from every continent. The resulting exhibition each year showcases the best of the best. Touring globally, the winning images envelope visitors within the animals' stories and habitats around the world.

The *Wildlife Photographer of the Year* competition celebrates animals, photographers, and the diversity of life on Earth.

The Field Museum is pleased to present the exhibition from this prestigious competition, from March 22, 2019 to January 12, 2020 in the Levin Gallery of the Yates Exhibition Center.

You might be surprised to know some of the most arresting images were captured by keen-eyed kids. Visitors to the exhibition will be moved to a deep appreciation of the Earth's living things, its breathtaking landscapes, and the fragility of this planet we share.

WILDLIFE PHOTOGRAPHER OF THE YEAR *IS DEVELOPED AND PRODUCED BY THE NATURAL HISTORY MUSEUM, LONDON.*

WILDLIFE PHOTOGRAPHER OF THE YEAR

NATURAL HISTORY MUSEUM

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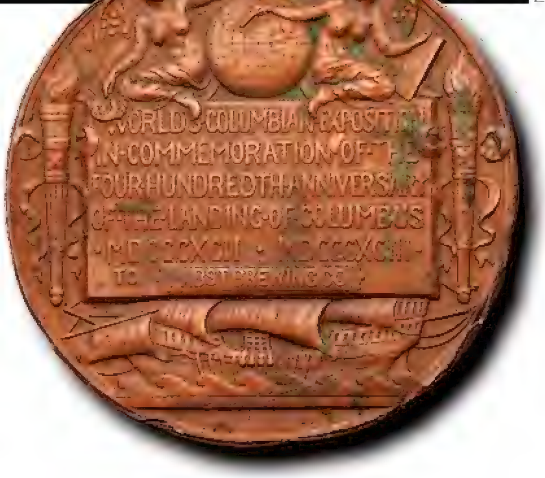
(Opposite, top) As a group of Qinling golden snub-nosed monkeys jumped from tree to tree in the forests of Shaanxi Province, China, the photographer Marsel van Oosten struggled to keep up. Gradually he learned to predict the monkeys' behavior. Marsel van Oosten was thus able to capture a male and female resting briefly on stone seats.

(Opposite, bottom) Five years after last erupting in Kamchatka Peninsula, Russia, the molten rock of Plosky Tolbachik volcano still glows and radiates intense heat.

(Left) A two-banded plover chick runs after its parents in Valdes Peninsula, Patagonia, Argentina.

(Below) Having spotted walruses from his dinghy off the coast of Svalbard, Norway, the photographer Valter Bernardeschi slipped into icy water to photograph them. He captured these young walruses with his camera on a float.

Interior of a saloon in Chicago, 1905


WORLD'S COLUMBIAN EXPOSITION
IN COMMEMORATION OF THE
FOUR HUNDREDTH ANNIVERSARY
OF THE LANDING OF COLUMBUS
MDCCCXCII - MDCCCXCIII
TO PABST BREWING CO

(Below) At the 1893 World Columbian Exposition in Chicago, this medal (and not a blue ribbon) was awarded to the Pabst Brewing Company. By 1893, lager-style beers were considered "American", not "German." Grand pavilions where fairgoers could drink lager beer were some of the most popular attractions of the fair.

GDN-0003265, CHICAGO DAILY NEWS NEGATIVES COLLECTION, CHICAGO HISTORY MUSEUM

GN92589_043CD / JOHN WEINSTEIN

Exhibition

BREWING UP CHICAGO

BY MARK ALVEY, SCIENCE & EDUCATION

If you're like me, when you think of the Field Museum, you think of **beer**. I mean, there's the display in *Inside Ancient Egypt* about beer's role in Egyptian society, and the panels inside *Plants of the World* that present Chinese rice beer (circa 800 BC) and the grains used to make modern brews. Plus, the Museum's herbarium contains dozens of specimens of *Hordeum*, *Oryza*, and *Humulus* (barley, rice, and hops)—and, of course, there's the ancient Wari brewery (circa 1,000 AD) discovered in Peru by Field Museum archaeologist Ryan Williams, PhD.

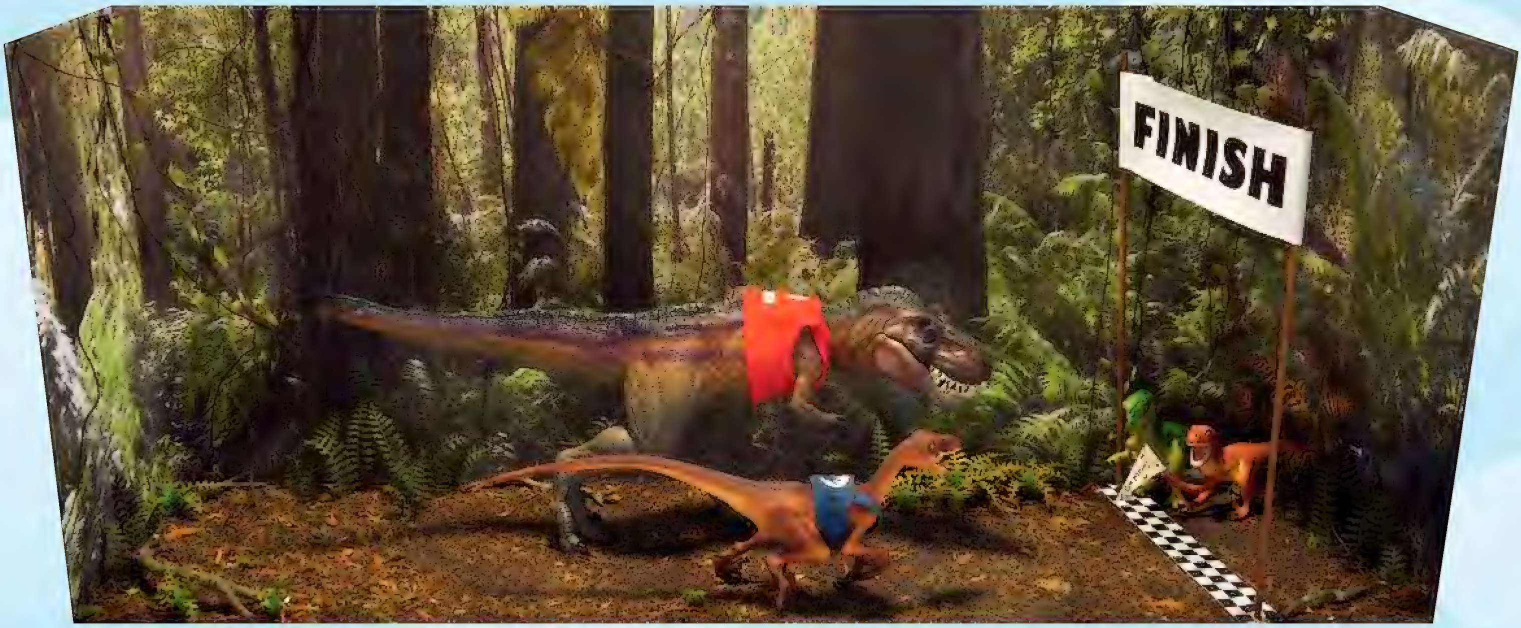
So what better venue for a new exhibition about beer? The Chicago Brewseum has developed *Brewing Up Chicago: How Beer Transformed a City*, an exhibition now hosted by the Field Museum.

Brewing Up Chicago is more than an exhibition about beer; it tells the story of beer's historic role in shaping Chicago. The malty beverage serves as a thread upon which the exhibition organizers have created a story of immigration, prejudice, politics, labor, and industry. Visitors will learn how beer was disdained in the mid-19th century due to moral concerns, but also because of its association with German immigrants, a despised minority at that time. Visitors will also discover:

- How Chicago's Siebel Institute of Technology, a "scientific school for brewers," pioneered brewing techniques still in use today;
- How Midwestern agriculture influenced recipes for beers across the globe; and
- How politics and beer-ophilia collided during Chicago's "Lager Beer Riot" of 1855.

If you like Chicago history with an expressive flavor and bold finish, hop (or head) over to the Field to see this fascinating show, open now through January 5, 2020.

THIS EXHIBITION WAS ORGANIZED BY THE CHICAGO BREWSEUM.



HEALING SCENES AT LURIE CHILDREN'S HOSPITAL

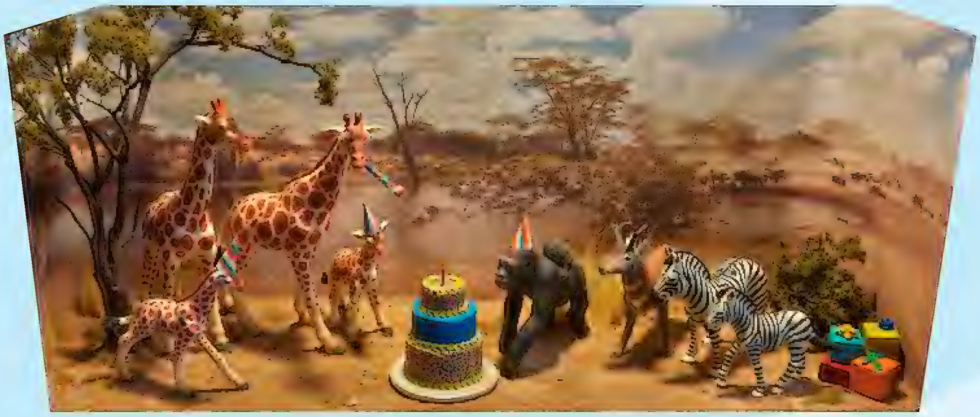
BY FRANCK MERCURIO, INSTITUTIONAL ADVANCEMENT

Having a sick child in the hospital is difficult for everyone involved, including parents, siblings, and the ailing child herself. But the Ann & Robert H. Lurie Children's Hospital of Chicago is striving to make a clinical stay less stressful through its Creative Arts Community Partnerships. Many of Chicago's favorite cultural institutions—including the Field Museum—have partnered with Lurie Children's to create interactive environments on different inpatient floors of the hospital's Streeterville location.

Collaborating with hospital staff and Lurie Children's Kids and Family Advisory Boards, Field Museum artists and designers created 13 miniature dioramas and 16 large-scale photographic images for the hospital's new Regenstein Cardiac Care Unit located on the building's 22nd floor. The Museum also developed a nine-screen video installation, which greets visitors with scenes of forests, oceans, grasslands, and deserts when they first arrive at the Unit.

Artists in the Museum's Replication Shop—Susan Phillips (recently retired), Kate Ulschmid, and intern Fan Ge—created the miniature dioramas. Installed in May and September of 2018, **the dioramas harken back to the great tradition of detailed, scientific scenes at the Field Museum, yet portray kid-friendly animals engaged in fun scenarios and flights of fancy:** dinosaurs in a foot race; meerkats painting at an easel; giraffes and zebras enjoying a birthday cake—all of which help take young minds off their physical ailments.

"Input from Lurie Children's Kids Advisory Board, comprised of current patients, was revelatory and hilarious and absolutely crucial to this project's design process," says Janet Hong, Exhibitions Project Manager at the Field. "Only kids who have stayed for long months in a hospital would understand what details might work in dioramas and photographs, and what details might be unexpectedly scary to young patients."



(Top) A T-Rex and a Velociraptor race to the finish line wearing Lurie hospital marathon bibs.

(Left) African mammals meet at the water hole to celebrate a baby gorilla's birthday. Based on the "African Water Hole" diorama on display in the Carl E. Aekely Memorial Hall.

ALL IMAGES © JOHN WEINSTEIN

HE78426 / FIELD MUSEU

THE N.W.HARRIS PUBLIC SCHOOL EXTENSION
FIELD MUSEUM OF NATURAL HISTORY

HE78507 / FIELD MUSEUM

Engaging Generations of Students

THE N. W. HARRIS LEARNING COLLECTION

BY CHANDLER GARLAND, INSTITUTIONAL ADVANCEMENT

In 1911, Norman Wait Harris generously endowed a new program at the Museum to share its knowledge and collections with children in Chicago Public Schools classrooms. The N. W. Harris Learning Collection—originally the N. W. Harris Chicago Public School Extension—sought to breathe life into textbooks through the creation and sharing of miniature dioramas or exhibition cases. In its first 50 years, the Field Museum delivered a rotating set of 1,300 cases to Chicago Public Schools every two weeks.

In his book *The Story of the Exposition*, Frank M. Todd writes "It was the belief of Mr. Harris that if a scheme could be devised to give that textbook life, so that younger minds of society would have attractive fields in which to extend their reason and imagination, they would contract the habit of acquiring knowledge and would find delight in it; and better citizenship would develop in the community than comes from the too often penitential drudgery of the classroom." As the program has evolved to include new materials, this progressive vision for education has remained a guiding principle.

With support from the Harris Family through the New York Community Trust, the Collection continues to grow and provide a foundation of object-based learning in classrooms. The N. W. Harris Learning Collection now has more than 400 unique exhibition cases covering the full breadth of studies happening at the Field and over 70 experience boxes, which provide students with hands-on learning.

Throughout 2019, the Field Museum will be celebrating its 125th anniversary with a series of special events—and also by recognizing some of the families that have supported the Museum and its mission for generations. **Thank you!**

PGN92579_23AD / JOHN WEINSTEIN

RICE NATIVE GARDENS

BY JENNIFER DRAPER, PROJECT LANDSCAPE ARCHITECT AT *SITE DESIGN GROUP, LTD.*

The recently completed Rice Native Gardens support the Field Museum's mission to promote environmental conservation and global sustainability. Following guidelines created in the Field's 2014 Landscape Masterplan, Museum staff and landscape architects from *site design group, ltd.* transformed the four terraces surrounding the building—formerly dominated by grass lawns—into destinations showcasing the diverse native plants of Illinois. The design is intended to recall native habitats from the Chicago region, as well as connect the Museum Campus to existing wildlife and native plant corridors along the lakefront and in nearby Grant Park.

Community involvement has been paramount to the project. Working collaboratively with the Field Museum and community partners, the project highlights the cultural roles played by native plants, especially their use in foods and medicines. Examples include Carolina allspice (*Calycanthus floridus*), American witch-hazel (*Hamamelis virginiana*), Sassafras (*Sassafras albidum*), and Joe Pye Weed (*Eupatorium purpureum*). As part of the Native Planting Volunteer Day in June 2018, a portion of the planting installation was completed in collaboration with volunteers from the American Indian Center, the Field Museum Women's Board, and Museum staff.

Paths and seating within the gardens provide gathering places for groups of visitors, and new interpretive signage allow the grounds to serve as educational exhibitions about native flora.

The Museum is strongly dedicated to environmental sustainability and green infrastructure practices, exemplified by the Field's LEED Gold certification (2015) and the Rice Native Gardens. These values demonstrate the Museum's vital role as a leader in conservation education for Chicago and beyond.

THIS PROJECT IS MADE POSSIBLE THROUGH THE GENEROSITY OF THE DANIEL F. AND ADA L. RICE FOUNDATION.

Benefits of Natural Landscape Design

By **Ernst Pierre-Toussaint**, Director, Facility Planning and Operations

GN92540_273D / JOHN WEINSTEIN

The Museum's re-envisioned landscaping has provided a way to showcase its commitment to conservation and the environment with over 88,000 square feet of native plant gardens. The new landscaping provides many benefits, including:

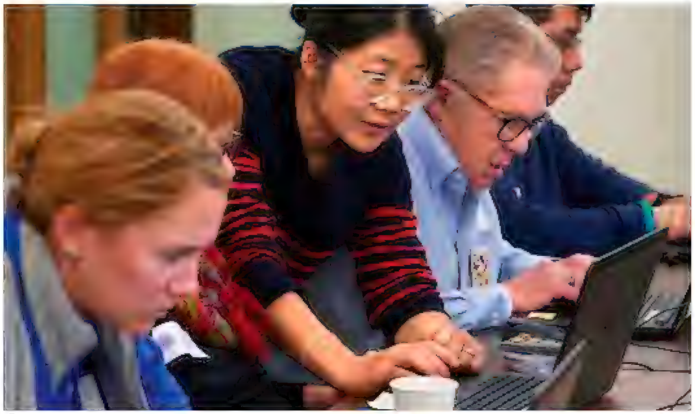
Water Conservation. *Turf grass is water-intensive and often needs to be watered with a sprinkler system. Native plant gardens reduce water use and also help reduce excess runoff and flooding during storms.*

Native Ecosystem. *Native plants provide habitat for many local fauna, including insects, migrating birds, and small mammals, which encourage the presence of owls and raptors.*

Educational Opportunities. *With the addition of interpretive signage, the gardens become an outdoor exhibition, encouraging visitors to learn more about local habitats and botanic species.*

Beautification for Events. *The grounds, significantly enhanced with natural landscaping, provide excellent outdoor spaces for special events.*

Member Opportunities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WEDIGBIO

In celebration of the Field's 125th anniversary, the Museum participated in WeDigBio (Worldwide Engagement for Digitizing Biocollections), a 2018 event where science enthusiasts digitized natural history collections from around the globe. At the Field Museum, 665 volunteers transcribed and recorded data, creating 16,247 digital records. Specimens included flowering plants, mosses, lichens, insects, and mammals.

And it's not too late to get involved! Volunteers can continue to participate online. For more information, email wedigbio@fieldmuseum.org.

FANTASTIC BUG ENCOUNTERS!

Opening on June 28, this special traveling exhibition from New Zealand's Te Papa Museum will present the lives and unique adaptations of the world's "bugs"—insects, arachnids, and myriapods—to the Field Museum.

Member Preview Days:
Wednesday, June 26
Thursday, June 27

Entry into the exhibition will be from 9am–4pm each day. No tickets or advanced registration required—just pick up your member sticker from the membership desk when you arrive.

Save the Date!
Member Viewing and Presentation
Thursday, July 11, 5:30–9pm

Registration for this event will open May 29. Full details will be emailed and available on fieldmuseum.org/memberevents.

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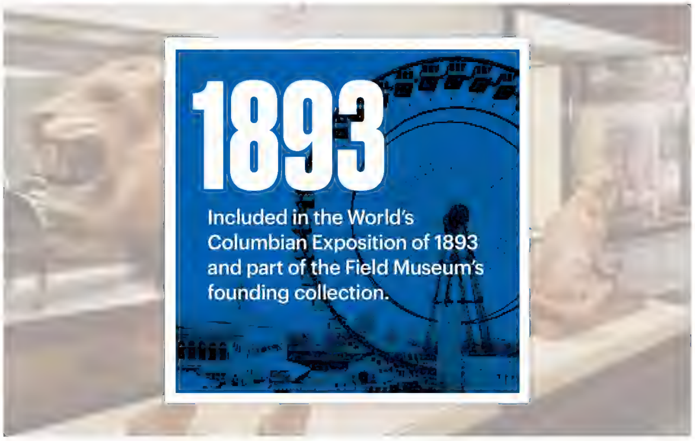

1893
Included in the World's Columbian Exposition of 1893 and part of the Field Museum's founding collection.

SCAVENGER HUNT! WORLD'S COLUMBIAN EXPOSITION

The Museum's founding collection—about 50,000 items—came directly from the World's Columbian Exposition, which was hosted in Chicago in 1893. Today, 2,000 of those artifacts and specimens are on display in the Museum. During your next visit, look for this decal as you walk through the Museum and see if you can spot some items from our original collection.

Interested in some of the Museum staff's favorite objects? Stop by the Membership Desk to pick up a scavenger hunt that will lead you to a few of our favorites from the World's Fair of 1893.

For up-to-date information for all member events, visit **FIELDMUSEUM.ORG/MEMBEREVENTS**

ALL IMAGES © KYLE FLUBACKER PHOTOGRAPHY

Save the date
FREE!
May 9 & 10

68TH ANNUAL MEMBERS' NIGHTS

Save the date: May 9 and 10, 5–10pm
Free for members!

As a Member of the Field Museum this is your exclusive opportunity to learn about the fascinating work and scientific research that happens at the Museum every day. Meet and speak with Museum staff—including scientists, curators, and exhibition designers—and see spectacular artifacts and specimens not on display in our public exhibitions. There is always something new to discover at Members' Nights—don't miss out on the most engaging and exclusive event at the Field Museum!

Reservations are required and space is limited. Check your mailbox in March for your official invitation. For up-to-date information on all member events, visit fieldmuseum.org/memberevents.

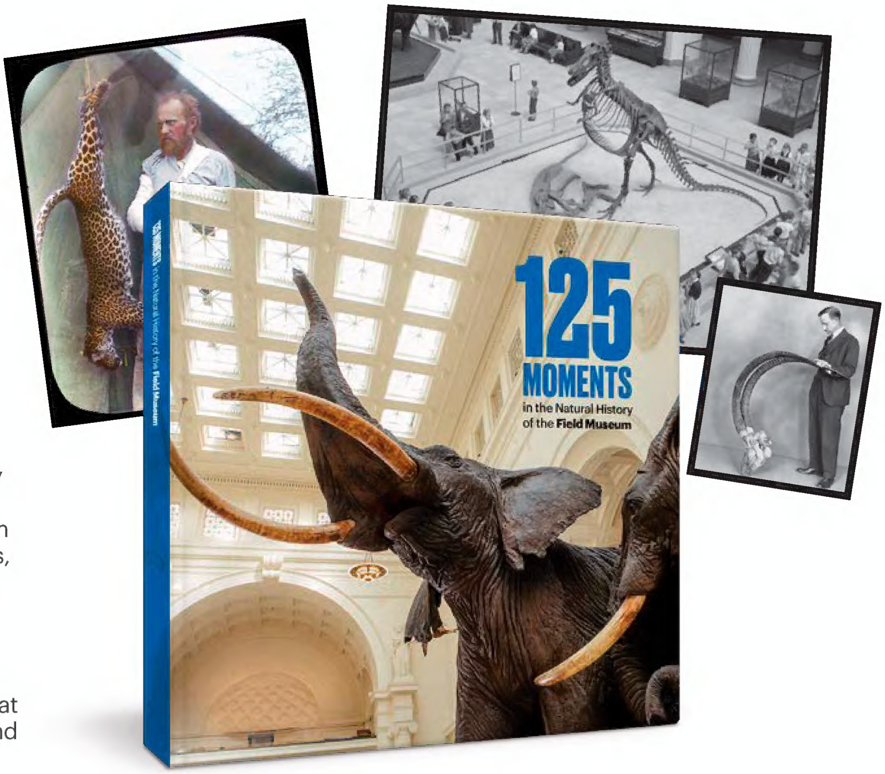
Celebrating 125 Years

2018 marked the 125th anniversary of the Field Museum's founding. So why are we continuing to celebrate the Museum's birthday in 2019? Although chartered in September 1893, the Museum didn't open its doors to the public until June 1894—so let the festivities continue!

One way to celebrate is to purchase a copy of the Field Museum's commemorative book, *125 Moments in the Natural History of the Field Museum*.

After 125 years, the Museum has collected almost as many stories as specimens, and you can read many of them in this major work encompassing the history of the Field from 1893 to the present. Find out about the original collections, major (and quirky) expeditions, and the time the Museum almost became a hospital.

125 Moments in the Natural History of the Field Museum is coming to Museum stores March 2019. Stay tuned for more information about purchasing your copy. And remember that sales from Museum stores support the scientific learning and mission of the Field.



Museum Campus Neighbors

ADLER PLANETARIUM

#LookUp with the Adler Planetarium as we celebrate the mysteries and magnetism of our closest celestial neighbor, the Moon! Now playing is the Adler's brand new sky show, *Imagine the Moon*, which takes a closer look at humanity's relationship with Earth's cosmic companion. You're guaranteed to see the Moon in a whole new light!

This summer will be your last chance to see the award-winning exhibition, *What is a Planet?* Join us in exploring the story behind Pluto's demotion, how astronomers classify celestial objects, and, most importantly, cast your vote on what you think Pluto's status should be before the exhibition closes on August 18th!

For more information, tickets, and showtimes visit adlerplaneatrium.org

SHEDD AQUARIUM

Treat the winter blahs with a little *Underwater Beauty* at Shedd Aquarium. From angelfishes to sea dragons, weird glowing corals to unexpected dancing shrimp, every aquatic animal is beautiful in how it is adapted to thrive in its environment. Make your visit more beautiful with Illinois Resident Free Days on select dates in February. Family overnights at Shedd are a spring thing: supper, activities throughout the aquarium, then sleeping among the fishes! Come June, Shedd takes the fun outside again with the exciting Stingray Touch experience and Jazzin' at the Shedd on Wednesday nights.

For details, visit www.sheddaquarium.org

Museum Hours

The Field Museum is open from 9am–5pm every day except Christmas Day, with last admission at 4pm. **For special hours, parking, and public transportation options, visit fieldmuseum.org/visit.**

The Field Museum salutes the people of Chicago for their long-standing support of the Museum through the Chicago Park District

UNITED AIRLINES

Official Airline of the Field Museum

MUMMIES: SEEING THE PERSON INSIDE

Get a close-up look at mummies from the two places in the world with the longest and most interesting mummification traditions: ancient Egypt and ancient Peru. Using non-invasive CT scans and cutting-edge technology our scientists uncover the lives of the people inside in this extraordinary, limited time exhibition. Plan your visit to experience *Mummies* only at the Field.

This exhibition was created by the Field Museum.

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JANUARY 26 - JULY 21 2019

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